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ABSTRACT

A study investigated whether students instructed with expository (content area) materials in conjunction with the narrative materials used in the reading program would differ in reading comprehension achievement from students who were instructed with the narrative materials only. A control group of 19 fifth grade students was taught according to a school district's curriculum guide and using only basal readers. An experimental group of 20 fifth grade students was taught in the same manner, with additional emphasis placed on content area reading activities. The results showed that the experimental group achieved significantly higher scores on a posttest measure of reading comprehension, suggesting that the use of expository materials as an addition to the reading program could result in an increase in reading comprehension. (FL)

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THE EFFECT OF INSTRUCTION USING EXPOSITORY MATERIALS ON READING COMPREHENSION WITH FIFTH GRADERS

by

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Most material used in the elementary classroom to teach reading is narrative, coming from a basal reader, with literary type questions concerning plot, characterization, setting, and theme. Espository reading in the forms of science, social studies, math, and health is taught less frequently as compared to narrative reading. Content area questions are usually factual having the purpose of retrieving information....nothing more. Faced with almost an entire curriculum of content reading when entering junior high school, most students are ill-prepared for the tasks set before them.

Primary teachers provide instruction of the skills necessary to read the story-type paragraphs, whose purpose is in teaching children how to read (Karlin, 1971). The emphasis is upon learning and practicing reading skills and not really on the ideas that the materials contain, although some children will acquire them. In the intermediate grades, reading instruction helps to refine the skills previously learned to use them with greater sophistication in reading more difficult materials. The emphasis is still upon learning to read, but using only narrative materials with no deliberate content. Children in the intermediate grades have to read content material in other subjects, but their purposes for reading informational materials are not the same as they are for reading narrative materials; and they therefore have difficulty reading them. Reading instruction which is limited to helping children understand story-type and fictional writing fails to take into account the difficulties children may experience when they read other kinds of writing. Teachers may find that children can handle stories with adequate understanding but have trouble with the content fields.

Reading instruction in the intermediate grades should refine skills previously taught and include provisions for developing ability to read in the content areas, in which they will spend most of their time; thus children will learn through reading.

According to Lehr (1980), reading instruction is far too important to be confined to only one segment of the school day. Content area reading instruction needs to be considered by all elementary teachers since the skills necessary to function in this area may not be transferable from reading class. Teachers should be able to identify the skills necessary for a given assignment and provide the instruction in those skills. She contends that there are a number of approaches to accomplish this feat. One is the Directed Inquiry Activity (DIA), devised by Thomas which is a previewing technique. Ribovich suggests four strategies to support comprehension as the student reads, dealing with expectations, organization, writing style and thinking processes prior to reading. Analyzing content to determine the specific reading behaviors necessary for learning the content and teaching them, is reflected in Carney's integrated approach. Cassidy describes Project C.A.R.E. (Content Area Reading Enrichment) which ensures that all children receive reading instruction in every content area through grade eight.

In Taylor's research (1980), she found that following an organization of ideas in expository text determines the recall for the material when testing sixth-grade good and poor readers, fourth-grade good readers, and adults, when questioned immediately after a two-day delay. This situation warrants attention from upper elementary teachers.

Gagner and Memory (1978) found when testing sixth graders with randomly selected cause-effect passages, that general comprehension measured by free recall was better for students who were told to form an image, given a familiar example, or given background information, than for students reading the same passages with instructions to read carefully. The reader is encouraged to relate old and new information to enhance comprehension.

Adjunct questions (that is, questions which are interspersed throughout reading passages) can contribute to comprehension (Hudgins, Dorman, Harris, 1979). Children scored better on a criterion test if questions had been interspersed with parts of the test. For repeated questions, scores were higher if children had answered questions one at a time instead of in blocks during reading. High comprehenders scored better on repeated questions if they initially had seen the questions just after reading the passage. The difference for low comprehenders was not significant.

Almost all paragraphs, says Pauk (1979), in expository prose are made up of three compoonents: main ideas, supporting details and clarifying devices. Trouble in comprehension will result if the student is not aware of this natural grouping and structure.

Hypothesis

No significant difference in the mean reading comprehension achievement of the samples of fifth grade students will be found when one is instructed using expository (content) materials in conjunction with narrative (basal) materials while the other is instructed with identical procedures in narrative materials only.

Instructional Procedures and Sample

Fifth graders participating in the study were pretested with the Stanford Diagnostic Reading Test, Level Brown Form B. Both samples were similar in reading ability and intelligence. The control sample, consisting of nineteen students, was given reading instruction five days per week using the district's Reading Curriculum Guide as the guide for reading instruction along with basal materials. The experimental sample was also given five days of classroom instruction per week. This group of twenty students, besides being taught the skills outlined in the Reading Guide, using basal materials, had content reading activities three times per week over a four-month period. The groups were equated on measures of intelligence and initial reading levels, came from the same socio-economic levels, and were in one school.

At the end of the alotted time period, both samples were post-tested using an alternate form, Level Brown Form B, of the Stanford to determine what gains, if any, were made in comprehension. The t test of the significance of mean differences at the beginning and end of the experimental period were used to test the hypothesis of the study.

Definitions, Assumptions, Limitations

It is important to define the following terms so that misinterpretation does not result:

Reading comprehension - the association of an experience with a given symbol (elemental). The interpretation of words in context, the understanding of phrases, sentences, paragraphs and stories.

Summary - essential facts and main idea in capsule form.

Cause and effect - the effects of a given cause

Basal Reading - a systematic attempt to teach children to read by daily instruction using published books of readers, workbooks and manuals

Content area - subject areas of science, mathematics, English, social studies, health, etc.

The study encompassed a four-month time interval.

Thirty-nine students in the fifth grade were used in the study which restricts generalization to all fifth graders

Two different instructors participated in the study. One worked with the experimental group while another worked with the control group.

The total time period of instruction for both groups was eight hours per week, which included one hour of self-selected reading devoted to application of reading skills to content materials for the experimental group, and to narrative materials for the control group. Of the seven hours of instructional time, the experimental group averaged 4.5 hours per week using basal materials and 2.5 hours using content materials.

Specific Procedures

The experimental group was given specific instruction and follow-up activities using content materials three times per week in conjunction with regular basal reading assignments.

Prereading activities such as filmstrips, discussion, lecture, experiments, projects, and reports involving research were used with various assignments.

Advanced organizers including handouts, vocabulary instruction, and the SQ3R technique were used to aid textbook instruction. Patterns

of writing were presented in science and social studies including classification patterns of main topics and sub-topics, usage of words in specialized print, diagrams, and the function of signal words such as first, second, third, etc. because, such as, before, after, since, but, in conclusion, on the other hand, among others.

Application of reading skills to non-textbook materials involved the use of worksheets, kits, puzzles, workbooks, and a news magazine as enrichment activities. (Appendix A).

At the end of the four months of instruction, comparisons were made between students' initial and final scores to determine any gains in reading comprehension.

RESULTS

Table I illustrates the mean IQ scores of both the control and experimental samples. Utilizing statistical tests to determine the significance of the differences between the means of the samples, a t

Table I

Comparison of Mean Intelligance Quotient Scores of the California Short Form Test of Academic Aptitude of the Samples

	Mean	SD	t
Control Sample	111.89	11.32	1.02
Experimental Sample	107.25	16.19	

of 1.02 resulted, suggesting that the differences between means is not significant at the .05 level. Thus, the samples were well matched.

Table II indicates a comparison of pretest scores on the comprehension subtest of the Stanford Diagnostic Reading Test, Level Brown,

Form B. Applying statistical tests to determine the significance of

Table II

Pretest Comprehension Scores of the Samples

	Mean	SD	t
Control Sample	38.05	11.08	1.31
Experimental Sample	33.00	8.89	

mean differences between both samples, a t of 1.31 was computed, indicating that such as difference could have resulted by chance. The samples can be seen to be fairly well matched according to their pretest scores in comprehension.

Table III illustrates the means of the test scores attained on the comprehension subtest of the Stanford Diagnostic Reading Test, Level Brown, Form A, by the samples at the completion of the experiment.

Table III

Post-test Comprehension Scores

	Mean	SD	t
Control Sample	42.05	9.16	.37
Experimental Sample	43.30	10.71	

Applying statistical tests to mean differencs, a t of .37 resulted, suggesting that the difference between the means is not significant at the .05 level of confidence. It can be seen, however, in comparing Tables II and III, that improvement in comprehension occurred for both samples.

Table IV indiciates the mean gains of the scores achieved on the comprehension subtest of the Stanford Diagnostic Reading Test, Level Brown, Form A and B. Applying statistical tests to the mean gain, pre

Table IV

Mean Gains

	Mean Gain	SD	t
Control Sample	4	7.51	2.79
Experimental Sample	10.7	7.79	

and post-test results of the experimental sample shows that a t of 2.79 resulted. The difference in achievement of the experimental sample is significant at the .01 level of confidence.

Conclusions and Implications

The mean test results of the control group in the pre and post-test situations seem to suggest that students benefited from the designated reading curriculum. The means of the pre-and post-tests of the experimental group seem to indicate that similar instruction with instruction in expository materials improves comprehension significantly; thus the hypothesis of the study is rejected. The use of expository materials as an addition to the reading program appeared to result in an increase in comprehension scores as noted in the mean differences of the experimental sample. This appears to be due to the fact that specific instruction with expository materials better prepares students to deal with expository passages in reading comprehension tests. Attitude may have been a factor in the results, since the experimental sample could have been aware that they were involved in instruction not found

in the basic curriculum.

Further studies need to be done to determine what value content area instruction may have on the elementary reading curriculum. Perhaps at this grade level, students can be made aware of the skills needed to successfully meet the requirements of the upper grade content subjects. Studies of a similar nature should be carried on for a longer period of time to eliminate this factor as a limitation.

THE EFFECT OF INSTRUCTION USING EXPOSITORY MATERIALS ON READING COMPREHENSION WITH FIFTH GRADERS: RELATED RESEARCH

Content Reading Instruction

Gray stated that reading in the content areas was a problem back in 1947 and the problems were poor teaching, increased intellectual demands placed on pupils, more available aids to learning and their appropriate use, the character of the pupil population and drop out age. The National Committee on Reading in 1937, divided the responsibility of reading among teachers of reading, content teachers, and librarians. It was around this time that the slogan "every teacher is a teacher of reading" came about with which Gray disagreed. Three duties facing the content teacher were: to provide optimum conditions for the respective pupils to give direct instruction in those aspects of reading peculiar to a given subject, and to specifically train students in basic reading habits when assigned materials are beyond the reading level of pupils. He further stated that the reading habits and the content teachers extend and refine the reading efficiency of pupils in specific areas.

The only content fields that the pupil knows and can use consist of the ideas, information, and attitudes that he has accepted to make his own, McSwain (1946). The only reality of things, situations, and materials that the learner comprehends is determined by the meaningful content of his own mind. In the degree that the pupil reads poorly and often without meaning, he builds faulty content of mind. Why the pupil reads, what he reads, and how he reads in the content fields require continuous study and guidance by all teachers in the middle and upper grades. Motives and materials for development in critical reading

are provided by each content field which differ from each other. Since one significant part of each content field is the psychological process used by the student to build socially significant content of mind, McSwain says each teacher is a teacher of reading. Quality of content in the reader's mind is more important than the scope of the subject. Critical thinking depends on critical reading.

There are many values of content reading for children. If well guided, each child has a purpose for reading that is of immediate concern to him, he regards reading as a tool to satisfy his needs, and builds attitudes, curiosities, and a zest for learning (Strickland, 1946). Content work reveals a child's interests and needs and provides opportunities for the teacher to know him/her better and to capitalize on those interests. Learning to read critically and to evaluate findings accurately require many years of training and practice, and should be taught from the earliest years in school.

Evaluation of content reading in literature is largely in terms of emotional response; they either like the story or they don't, with little ability to back up the reasons. Usually any learning of facts is purely incidental. The story may be used to enrich other interests as in the case of a story based on facts, but in most cases, the reading itself satisfies the child.

Content reading has many facets and requires an almost unbelievable number of major and minor skills and abilities. Teachers who base the primary grades on developing the basic reading skills are far from understanding the reading process. "Reading to learn" must take place from the beginning, and continue with the addition of

new skills, aids, content, and interests throughout life.

Edwin H. Reeder states that reading in the content fields should consist in critical evaluation of the material read from the standpoint of its relationship to the promotion of the democratic way of life. In a democracy the directive force is the will of the people. If the direction of this will is stupid or unintelligent, so will be the direction of the government; if wise, then governmental action will be the same. It follows that a citizen must acquire data on which to base his opinion from reading and listening. Therefore, the habit of critical evaluation becomes a major goal of all training for citizenship in a democracy. There is no one time before which a child is not capable of critical reading after which he is. Critical reading is a growth, and its early stages should begin as soon as reading begins. Where democracy supports education, the school should teach critical evaluation of material read.

All of the reading skills necessary to read narrative materials are needed to read factual materials. In reading content material, children have to accommodate to a different style of writing consisting of unfamiliar and difficult vocabulary and concepts. Also, they must learn to master another set of skills, read-study skills which aid efficient reading and problem solving. Reading in the content area requires children to use their reading skills in a more sophisticated way than they would in reading stories. Karlin says that children study content to solve problems. This necessitates more than merely understanding what they read. The following activities are needed: to establish a purpose when none is given; locate in-

formation form single and multiple sources; select specific information and organize it; extract ideas from graphic materials; vary the ways in which they read; and follow directions carefully. Karlin further states that children will encounter more problems in reading content than they will in reading stories, even if both are on the same instructional level. Therefore, children need instruction and guidance in reading content such as surveying the materials, attention on the information read.

Not only do children need to understand expository information, but they need to remember the important facts. Recall is facilitated by understanding of the author's organizational pattern to present information, which can be taught. Children also need to be instructed in flexibility, knowing when to read slowly and carefully and when to read more quickly, and how to vary their styles of reading.

Koencke (1978) believes teaching reading in any content area means different things to different people. The definition of content area reading instruction has been clarified by Riley (1979) as the instruction that facilitates the learning of content area concepts through careful design and implementation (by the content teacher) of lessons that focus on selective processes, theoretically based or empirically verified. He maintains that direct teaching of reading skills is often mistaken for teaching reading in the content areas. The settings for direct teaching occur in remedial situations, developmental reading labs, or in tutoring in the reading and study of a subject area. This approach does not always help the student become independent in applying the skills and processes to the content areas,

but rather helps with the daily chore of learning content material. Functional teaching of reading occurs when students have a need for such instruction. It consists of: identification of content, selection of skills necessary to acquire concepts, designing instruction, and creating reading and learning tasks that lead to the acquisition of content concepts. Riley's definition of instruction in content area reading coincides with that of functional teaching of reading.

According to Estes and Vaughan, content area teachers need to understand today, more than ever, the relationship between reading and content instruction. The students reading abilities affect the learning that is sought in many cases. With little or no training in reading instruction, content teachers are unable to respond to the inability of numerous students to get something from their text books. Many graduate and undergraduate schools are making an effort to correct this deficiency by requiring reading courses fro secondary certification. The progress, for those who recognize that reading in the content areas is necessary, means teaching reading and learning skills along with content and making appropriate instructional provisions for those students whose reading skills interfere with learning. Content area teachers need the skills to diagnose the difficulties of their pupils in response to diagnostic information.

Up to 50 percent of the students in an upper-grade class cannot read their texts. Estes and Vaughan say that this does not suggest these students cannot read, rather most are quite literate. Literacy does not, however, guarantee success with all types of reading assignments.

The problem of reading in content areas is not given a solution in the phrase "every teacher is a teacher of reading". To say every teacher is a teacher of reading is self-defeating, but the idea that a teacher teaches students is the essence of reading and learning in any classroom. Like knowledge or understanding, reading ability is a phenomenon that develops over a lifetime.

Analyzing any reading material can best be done in terms of those basic factors: 1. concepts present in the selection, 2. the language used to convey those concepts, 3. the skills needed by a reader to extract those concepts.

Three principles of good instruction are: first, that content reading must be assigned and completed in a framework that allows the practice of reading strategies, or processes, and at the same time works conceptualizations appropriate to the needs of pupils. Second, students should be provided with materials that supplement their study, often in the form of study guides, which help them to understand what they area reading and to develop skills which appropriate to such reading in other settings. Third, pupils need to know that their purpose in content study is to develop understandings of what they are studying and to acquire strategies of study that can make them better able to continue the development of their understandings in the future.

Very few elementary teachers teach reading during social studies for example, which can produce an effect upon the relationship that exsists between the time spend in teaching reading and the students' achievement. Some skills, particularly reading comprehension, are best taught and are easiest to teach in the content areas. Cause and effect

works well in a science experiment setting and sequence can be applied in history. These two reasons can help justify the need to teach reading in the content areas to elementary grade students. Motivation, vocabulary skills, specific comprehension skills, recall skills such as visualization, recitation and review, inferential skills, logical order, chronological order, cause-effect, and predicting outcomes are activities that can promote concept formations in content reading.

The middle school teacher is faced with the task of aiding the transition between the skills oriented primary curriculm to the content oriented secondary curriculm. A diagnostic-prescriptive role is needed for this instructor. Individualized instruction is needed for all learners while extending student abilities in decoding and comprehension and teaching application of reading skills to content areas. Then, the task of the middle school teacher is to support development of reading skills not mastering content (Allington, 1975). Identifying techniques such as cloze, standardized tests, open book assessment, readability levels can benefit the diagnosis of problem readers. Experience must be considered as a prospective role in developing concepts, vocabulary and creating interest.

Secondary or content teachers should assume their responsibilities as teachers of reading (Bossone, 1962). Teachers who do not glow with interest and enthusiasm cannot make their students glow. Academic success or failure depends upon reading skill and the teacher's attitude toward this idea. Teachers in all subject areas need this positive attitude, otherwise students may get the wrong impression that reading is important only in English class.

The four major steps in the total complex process of reading that can guide the teacher are: 1. perception of words used, 2. comprehension of the ideas expressed, 3. reaction to these ideas; and 4. integration of new ideas with past experience.

Content area abilities cannot be left to chance or to haphazard notions. The reading specialist is not the total solution to teaching reading in the content areas, nor is the basic reading program. Competence is achieved when attention is focused on the content, not on reading itself. The content teacher does not have to be a reading specialist, but should guide students in the application of basic skills and study methods to the materials used (Palmer, 1975). The reading specialist teaches the skills that apply to all reading. Teaching of isolated reading skills is not motivating to the student, it may remove meaning from the experience. "Teaching reading as a process" needs to be put back into practice. Reading in the content areas is to obtain information, to reduce uncertainty.

Learning follows three phrases: 1. anticipation, 2. interaction, 3. synthesis. Traditional reading instruction has emphasized the first two phases by directed reading activities, directed reading-thinking, activities and SQ3R and its variations. Synthesis, the third phase, is usually not stressed. Purposeful reading requires that students, synthesize and assimilate what they read (Vaughan, 1977). Reading teachers need to teach students how to synthesize for them to be successful with content. The assumption that poor readers cannot understand what they read is not always correct. Many can and do understand, but cannot remember it. The key is transferring ability

in reading to a content area. The main difference between a reading teacher and content teacher is that usually a reading teacher emphasizes process, while a content teacher emphasizes content. To help students learn to retain information, reading teachers need to become teachers of content, meaning when the students have finished reading an assignment, instruction should be given to help them retain what they have read. Time given to post-reading should be as important as that given to pre-reading. Independent readers will emerge if reading teachers teach the content of every lesson.

Content area reading instruction does not always allow for the transfer of specific skills learned in reading class. Elementary school teachers are realizing that students need help in content area text reading. The Directed Inquiry Activity, developed from Stauffer's Directed Reading-Thinking Activity, is designed to help students make predictions about factual reading material, which helps to categorize and retreive information. Ribovich (ED 141 786) according to Lehr (1980), has proposed four instruction strategies to support comprehension as the student reads: 1. have students specify content expectations in a variety of forms and then read with a focus on the expected and unexpected, 2. direct students in writing experiences to help them to become more familiar with material organization and author style, 3. discuss and provide self-monitoring activities for students experiencing extreme difficulty in comprehension, 4. stimulate concept development and thinking processes prior to reading. Other strategies devised by Carney (ED 162 2517) call for the teacher to determine specific reading behaviors needed for learning that

content and then teaching those behaviors; provide a model for comprehension that students can manipulate, internalize and eventually apply on their own; and to instruct students about the framework within which the content is presented using structured overview and embedded organizer. The models are later removed and the reader is asked to make independent responses.

Reading Comprehension

Videotapes of eight high schools classes were analyzed to determine patterns in the reading activities, materials, and instruction in secondary content area classes. The analysis included a summary of the language arts involved, the duration of specific instruction segments and their percentage of the total class time and apparent patterns in the use of print. Although print was presented 72 percent of all class time, students were reading in the conventional sense only ten percent of the time. For the remaining time that print was available, use of print appeared to cluster into five main categories; cuing responses, reinforcing oral presentations, structuring the teacher's presentation, correcting assignments, and copying. Because students infrequently read in class, either to learn or review information, there was little opportunity to observe teachers introducing or following up on reading assignments. There was also little evidence that students were developing mature reading study skills in these classes (Greenwald, 1979).

Four factors affect comprehension: first, the physical condition of the reader, second, the interest of the reader in what the

reading matter is about; third, the difficulty of the material; and fourth, the purpose of the reader. A child must transfer the basal reading skills to the various content areas. Each discipline has its own peculiar reading skills and terminology which must be developed through the teacher, who also keeps the former factors in mind (Kaluger, Kolson, 1969).

Children's recall of metaphors is often better than recall of factual information in expository passages. Metaphors are better recalled than literal passages because of their novelty and vividness which make them more memorable not because they encourage greater comprehension (Pearson, 1979).

In their study of false prerequisites in the teaching of reading comprehension, Readence and Harris (1980) administered the "Iowa Test of Basic Skills" to eight sixth grade classes in a large Midwestern school system, selecting a group of good readers and one of poor readers. The two groups were given the Instruction Objectives Exchange (IOX) Comprehension Skills (1973) a criterion-referenced material, consisting of fifteen tests with five or ten items used to measure each subskill. The results were grouped under nine comprehension subskills areas: 1. identifying main ideas, 2. identifying possible outcomes, 3. drawing conclusions, 4. determining sequence, 5. identifying pronous referents, 6, deriving meaning from context, 7. using punctuation, 8. understanding syntax, and 9. affixes. Based on McNeil's study of false prerequisites in teaching word attack skills, Readence and Harris term a false prerequisite as a skill not acquired by good readers. Affixes were found to be a false pre-

requisite since both good and poor readers had difficulties with it. McNeil found affixes to be a false prerequisite to word attack also. Identified as possible necessary but not sufficient for comprehension were: identifying possible outcomes, using punctuation clauses, and understanding syntax. The five skills achieved by nearly all the good readers but very few of the poor readers were: identifying main ideas, drawing conclusions, determining sequence, identifying pronoun referents and deriving meaning from context. These are recommended for instruction until further information is found.

Prereading Research

Betts, Karlin, Russel, Smith, Dechant, Strang, McCullough, and Traxler all agree that the concept of readiness for reading is not limited to beginning reading but is necessary no matter what the grade level. Readiness has received too little attention at the upper grade levels. Many teachers fail to see the inseparability of teaching reading and teaching subject matter because they are prone to think that the teaching of reading means teaching beginning reading (Marksheffel, 1966). Teaching reading in subject matter and teaching beginning reading are not synonomous. There are steps in both teacher and student readiness in reading. The teacher must realize that students differ greatly in reading ability, that many inefficient readers are of average or super intelligence, and that students need to be prepared for reading and learning. Students' interests need to be aroused to motivate action; this can be done by introducing new vocabulary, set a purpose for reading, or clarifying and developing concepts. How much time needed to accomplish this preparation depends upon the

teacher's knowledge of the students and the difficulty of the new material. He/she must decide the kinds and amount of help that the students need for optimal learning.

Efficient learning of subject matter is not a haphazard phenomenon. Student learning is greatly determined by the kind of guidance that is given by an adequately prepared teacher. The teacher of subject matter who recognizes that concepts develop slowly and from meaningful learning experiences will provide sequential experiences that provide the opportunity to learn content. Few secondary students are efficient, mature readers. Reading skills, like other learned skills, usually require more than one presentation before they are mastered. Opportunities for practice, review, evaluation, reteaching and motivation must be continuous from grade to grade and from day to day.

The readiness concept for reading assumes that the individual knows certain things before they can learn specific or additional material, or that they must develop certain skills before they can develop others. Because readiness is an inferred mental state, teachers do not have direct knowledge of an individual's state of readiness. Classroom teachers can ensure readiness by giving children preparatory activities. Organizational techniques not only prepare the student, but direct the teacher also. Content objectives can be clarified and major ideas are precisely identified (Vacca, 1977).

Standardized tests and readability formulas are rough measures according to Hansell (1976). If understanding eases the reading task and if identification of meaning precedes word recognition, then all teachers may help students to read by helping them understand the content

before they deal with the print. Reading is then correctly defined as an important tool for understanding the world. Pre-reading activities are either teacher centered or student centered. Teacher centered activities involve techniques such as lecture, films, filmstrips, videotapes, or structured overviews. Student centered activities include questioning, discussion, Content Directed Reading Activity and others. The latter activities can help to prevent student frustration caused by reading difficulty and to facilitate development of content goals.

Reasons for difficulties with student textbooks have included: readability higher than that of students' reading levels, elementary reading skills focused on literature rather than expository writing, and teacher assumption that students have mastered the basic reading-study skills necessary for content areas. Karahalios, Tonjes, and Towner (1979) proved that students who receive preparatory instruction will do better than students who do not receive such instruction. Seventy-six seventh graders were randomly divided into three groups. All had the same text as the base. Group one had to read the assigned chapter and answer questions at the end; group two had the same instructions and was told to skim the chapter first, paying attention to major headings and words in boldface and italic print; group three also received the same basic directions, but was given an advance organizer (written handout) explaining the major concepts, using simplified vocabulary. Results indicated that the groups with prereading instruction increased student performance on a post-test given to all groups to measure comprehension; particularly significant were the results between groups one and three.

Research has shown that giving students an outline used specifically for two different goals can aid in helping to remember content from a text (Guthrie, 1978). In a recent study with college students, an outline was given on a topic and students were required to be able to write it from memory. The students who knew the structure of the content from the outline remembered 50 percent more information from the text than those who had no outline. The reason for these results has not been established except to say that an outline provides a framework for information or that students have a context for learning. Constructive learning which is connections between concepts in the text and our experiences, can be improved by giving an outline after reading, and asking the reader to remember the full text. This promotes inferencing and works best with a poorly organized text. An outline does not benefit students' inferences if the author presents the content in an orderly fashion. Thus the outline is a useful tool in helping remembering of content.

Another prereading activity suggested by Lewis (1979) is the Directed Discovery Learning Approach. Based somewhat on Bruner's and Ausubel's ideas, the DDL is more structured implementing activities, experiments and guiding questions as preparation for reading assignments rather than as ends in themselves. Reading can help a student acquire concepts provided they are in the broad grasp of the reader. Otherwise, the student needs help in understanding concepts before he reads. Using the DDL approach, students should find follow-up reading assignments can broaden their understandings and provide positive reinforcement of their predictions.

Sartain (1978) proposes that student involvement in class projects based on group interests will actively get them reading content material without outside teacher coertion.

Thelen (1979) believes teachers should be primary sources of information while texts should reinforce concepts already developed through pre-reading activities. Content teachers should be encouraged to provide students with pre-reading techniques which can help organize or become experimental background to aid concept learning. Discovering what their students already know aids the teacher in actual instruction.

Using the Textbook

The problem with student comprehension of textbooks has been blamed by some who say textbooks are poorly written or that the readability levels are too high. To compensate, many teachers teach the chapter before assigning the reading. Pauk (1979), calls this spoon-feeding which slows growth in comprehension skills. SQ3R and its variations were thought to be an answer to student dealing with the text, but failure still existed. The missing link in SQ3R is main ideas, which should be taught before SQ3R is used. The context of the paragraph is the best to teach main idea. All expository prose paragraphs are made up of three parts: main ideas, supporting details, and clarifying devices. Once the main idea is found, everything else in the paragraph is a supporting detail. Clarifying devices are words such as first, second, more important, just as important, etc. Comprehension can be aided if students are aware of this natural grouping

and structure.

Two sets of skills exist in reading situations according to Smith (1964). First, there are "common reading skills" such as: word, recognition, understanding, meanings, and rate for different purposes. These skills are used in all kinds of reading. Secondly, there are "common study skills" which involve selections and evaluation, organization, recall, location of information, and following directions. All subject areas use these skills. Each content area follows a particular pattern of writing. In literature, the student must adjust reading calling upon different combinations of the "common reading skills". When students answer questions and carry out assignments, "common study skills" need to be implemented. Science textbooks follow patterns too, sometimes calling for "common study skills"; "common study skills" the classification pattern with common headings and subdivisions; explanation of a technical process; which usually is accompanied with diagrams; instructions for an experiment, which is more than just following directions; a detailed statement of facts pattern; descriptive problem-solving pattern; the abbreviations and equations pattern; and a combination of patterns which might swing into another pattern. Students need to identify these different patterns and change their approaches toward the reading containing them to meet success.

Study skill methods can help achieve goals in comprehension. Measurement of understanding of a paragraph can be done through outlining (Appleby, 1977). By learning vocabulary through context, constructing a concise outline, constructing a summary based on outline, and then paraphrasing the paragraph, students can prove to themselves

and the instructor that they are able to experience success in understanding the material.

A study done by Wolfe (1978) demonstrated that the transfer of reading and study skills to subject-matter does improve achievement scores on standardized tests. Seventy-four seventh graders who participated in the study were divided into an experimental and control group consisting of thirty-seven students respectively. Students were pre and post-tested with the "Iowa Test of Basic Skills" consisting of vocabulary, reading, language, and word-study skills. Both groups were taught social studies and English for 110 minutes a day, five days per week, for thirty weeks. The same texts were used for both groups with the experimental group having reading and study skill strategies taught during content area lessons. The skills included assessment of how well students read and use locational, organizational, and reading rate skills; practice in how to adjust reading rate according to purpose and type of material read; and teacher prepared reading guides and vocabulary exercises. Significantly higher acheivement test scores were received by the experimental group than the control in the post-testing. The study tends to support the conclusion that when reading and study skills are incorporated as a part of teaching subject-matter lessons, students can better generalize those skills to standardized testing tasks. The experimental group used a systematic and analytical approach to vocabulary study. Direct teaching of the reading skills in the content area was emphasized. Teaching of the language skills to the experimental group consisted of a developmental approach to content, unified and meaningful presentation of skills and constant

practice and reinforcement of skills learned. Work-study skills were taught sequentially and were constantly applied to the areas of study. Students in the experimental group better understood and applied reading skills to the content areas and were later able to transfer the application of those skills to standardized tests.

Adjunct questions (questions which are interspersed throughout reading passages) can contribute to comprehension ability. In a study of 133 children in six intermediate classes, two classes of fourth, fifth, and sixth grade levels a pre-test identified each child's level of reading comprehension. Factual questions, either singly or in blocks, were interspersed throughout a text about knighthood. A criterion test was later administered containing the original questions and new ones. Children scored better if the questions had been interspersed with parts of the text. For repeated questions, scores were higher if children answered them one at a time rather than in groups during reading. High comprehenders scored significantly higher on repeated questions if they had seen them just after reading the material. There was no significant difference for low comprehenders. The good comprehenders, like adults, score better from questions after reading than from questions before. We can assume they changed their reading strategies while low comprehenders did not. The problem is to identify those strategies and then teach them to the poor comprehenders (Hudgins, Dorman, Harris, 1979).

Non-Textbook Activities

The textbook is not the sole reading resource, and we should not rely on it exclusively; nor should we discard it (Aukerman, 1979).

How to match textbook content to the needs and abilities of learners can be done through four different avenues.

The first is Grouping Via Textbook Difficulty when you have a heterogeneous group and one textbook. Aukerman (1979) suggests that the teacher xerox a paragraph from the text, which has not been read before, then ask ten questions (if possible) consisting of three factual recall, two true-false, three fill-in-the-blanks and two insight (cause-effect, implied meanings, etc.). The paragraph and questions would test the reading ability of that particular text for each student. The teacher would note the speed of each student and multiply it by the percentage of accuracy in answering the questions. This will give each student's ability on that particular test.

The students would then be separated into groups: those that have ability in the top 25 percent; those with abilities in the middle 50 percent and those in the bottom 25 percent. Using best judgement and this gross estimate of abilities, the teacher may decide that those in the middle 50 percent group could successfully use the text, while the others with abilities in the lower and upper quartiles must have materials more appropriate to their abilities.

The next avenue is Survey Via Textbook where the teacher conducts a wholeclass pre-planned discussion and the actual pages of the text being used are xeroxed with smaller print, leaving room in the margins for notes. This technique illustrates that planning assures success, it doesn't just happen. These elements are to be noted in the survey session: the main idea, introduction read to the class, review, summarize and restate the main idea and general concepts of the intro-

duction. The probable answers that will be suggested by the students will have been anticipated by the teacher.

Sub-headings are read by specific students whose names are in the margins. This way, poor readers can read simple heads and better readers can read and comment on the more complicated headings. The same idea can be used for charts, maps, diagrams and pictures.

Vocabulary is learned through the context of the chapter topic and is used in sentences written by the students and relate to the topic. Important names are listed along with vocabulary on the chalkboard or pieces of backtag.

A (pre-planned) summary is now written by the teacher with the help of class discussion. The written visuals already surveyed are used as references.

Everyone, regardless of reading ability, has taken part in the discussion and has been exposed to main ideas, sub topics and vocabulary.

Once "readied", students can now read the chapter. The nature and amount of reading is determined by the interest of each student in the topic. The type of reading is limited to the availability of materials at levels of difficulty.

Using the textbook as a sampler allows students to find a subtopic that interests them to investigate in more depth. This idea promotes the notion that any text is but a fraction of the accumulated knowledge about a topic.

A multi-test approach would incorporate several texts on the same topic but written at different levels of difficulty. This can be done in a department where classes can be grouped homogeneously or used al-

together as a basis of comparison for the students.

Current events can be supplemented by classroom news magazines such as "Current Events", "Current Sciene", "Know Your World Extra", "Weekly Reader", "Junior Scholastic ", etc. Teacher-made magazines can be gotten from cut up newspaper articles, placed in booklet form and xeroxed for student use.

Teachers can create a classroom clipping file where folders contain clippings of news articles with questions written on the back. Vocabulary may be noted and vocabulary exercises may follow.

Anthologies of articles in any subject-matter field may be used to teach the information, such as "Reader's Digest Social Science Readers", "Content Skills Series", by Jamestown Publishers, Scholastic "Scope", and others. Antholgies are written about exoeriences of real life people, are presented in a magazine rather than textbook format, are shorter than textbooks, and are written to entertain as well as inform.

Using ancillary books to be assigned as "outside reading" can also be used in the subject areas. Examples of thse are: "Hi-Lo Books", "Placemaker True Adventures", "American West Series", "Sports Star Series" among others.

No content area would be complete without a collection of reference books such as encyclopedias, books of facts, teen magazines, dictionaries, etc.

In conclusion, Aukerman states that any group of children has special needs and abilities, and reading materials must be matched to those needs and abilities. Students with low intellectual ability

can deal best with concrete concepts, while those with higher abilities can handle more sophisticated and abstract ideas. Student interests is another aspect of consideration when selecting materials to use. A third factor is the reading abilities of the students. Easier reading materials can encourage the search for facts and information rather than those which would frustrate the students. If we really believe in providing for individual differences, then content teachers should provide a variety of reading materials written within a wide range of reading difficulty, to match to the needs and abilities of students.

Teachers can improve students' content reading by preparing reading profiles in terms of student abilities, instructional material selection, and content learning objectives. These profiles should contain: orientation questions that give techniques, thier present bearings, the identification of the readability levels of texthooks, weekly news magazines, and ancillary materials used in the course; identification of student reading abilities and learning potentials; the relationship between students' past experiences, self-concepts and attitudes toward the subject; the teacher's own concept of a content teacher's role; the current trend in teaching the subject area; and the reading resources currently available in the content area. As teachers fill in the profiles for their classes, they begin to see how they can enhance learning, improve performance, develop student thinking skills, motivate students and effect change in the subject area.

Teachers who work with third grade through graduate school face the common problem of students who cannot read their text books or have difficulty doing so. Clary states that teachers need to understand why

these students have problems and how to teach reading and subject content simultaneously (Clary, 1974).

Many reasons exist as to why students have difficulties in reading content area material. Upper grade teachers tend to blame the primary teachers who, in turn, blame the parents. The reasons are more complex than this. Herber (1970) puts the causes into four areas saying the problem can be traced to, 1. student competence, 2. content materials, 3. curriculm pressures, and/or 4. teacher education. Sometimes reading has never been practiced using content materials, and therefore, the reader cannot apply what he knows. At other times, Herbert notes, the reader is simply not skilled enough to read the materials which tend to run one to two years in readability above the grade level for which they are used. According to Gail B. West, scholars who often write these books in the various fields are not aware of controlling vocabulary, sentence complexity, or concept load. The first two factors will increase the readability level of the book.

Content area teachers feel they can only teach their subject and have no time for teaching reading. Many administrators and school districts reinforce this feeling among teachers that topics, pages, and books must be covered, whether or not the students are having success in learning.

Most teachers at the secondary level, and in most content areas, have never had any training in teaching reading. Even if they would like to help a student with problems in reading, the teachers are ignorant of what to do and many times have no one to assist them. Thus, this lack of teacher training may complement the incompetencies of the

student.

The hows of teaching reading in the content area are numerous and Clary covers two approaches, the language experience method and the individualized approach, which can be adapted for use in teaching reading in the content area.

In using the language experience approach, you would divide the class into about three groups after a discussion, lecture, film or other motivator. One capable student is chosen recorder for each group and the teacher supervises; if there is no capable student, then the teacher would have to alternate recording for the groups. The students then dictate a passage on a topic that has been assigned based on the "stimulant." Guidelines are established, such as one sentence per student, the main idea must be the first sentence, etc. The recorder writes the passage somewhere where everyone in the group can see it, such as on the board, a chart, or overhead projector. As she/he is writing, the recorder should repeat the sentences. When the passage is completed, at least one student should read it over. A duplicated copy is given to each student the next day. Vocabulary and comprehension questions from the passage should be studied by making word cards, doing a handout, or writing a summary. By reading the passages, the students can generally learn the same thing as the text teaches, but with less frustration for both student and teacher.

The individualized approach to teaching reading in the content area involves a number and variety of books, magazines, newspapers, pamphlets and anything else that pertains to the study. These materials should cover the levels of the poorest reader in the class to challeng-

ging the best reader. Libraries can help gather these materials.

The student chooses a material to read at his own rate about a given topic. The teacher can circulate around the room to guide vocabulary and comprehension by asking questions of the student, or to call small groups together to explain difficult ideas. After completion of classroom reading, students can work on an assignment sheet, participate in a discussion or small group project. Later, an evaluation would be done such as a test to determine if reteaching is necessary before going on to the next topic.

Each student is successful at reading something about the topic, learning some of the concepts, and a range of abilities can be handled in the classroom with the individualized approach. It does not need continuous application but can be used two or three times a year, at the teacher's discretion.

Both of these methods have the advantage that content teaching goes on at the same time as reading instruction. Both can be used as strategies to help solve some of the problems of reading in the content area.

Project C.A.R.E. (Content Area Reading Enrichment), proposed by Cassidy (1977), was used in the Newark, Del., area to provide reading instructuion in content areas for children grades four through eight. Originally reading specialists were sent to work with students of content area teachers in grade six through eight. Later, kits were developed to provide classroom teachers with materials when there were not enough specialists to go around. The purpose was to make children aware of the characteristics of reading required in various content areas and to reinforce and extend these skills. The kits can be adapted to a

variety of classroom situations such as enrichment in grade three and for remediation in high school. Organized by subject area, the kids follow no formal format, with each differing according to the needs of the particular teacher. All have games and "folder stations" containing independent activities designed to strengthen students' vocabulary or comprehension skills.

Many concepts in the content areas can be taught through the use of children's trade books, which can enrich children's understanding in all curriculm areas. Fictional books can be adapted to bring a subject to life. Depth of understanding is greater when curiosity and interest develop naturally as opposed to teacher imposed. For example, in Jean George's "Julie of the Wolves" (1972), students can explore the necessities of survival in an Alaskan tundra and all of its ramifications. Nonfiction books written on all reading levels can also supplement understanding and factual knowledge (Billig, 1977). This idea may work when students are not motivated to read their social studies or science texts. Troy (1977) also agrees with this notion, saying that reading should be combined with other subjects. Teaching content through literature takes advantage of children's attention and enthusiasm. Dry facts are soon forgotten; attitudes, feelings, and general concepts can remain forever.

Frankel (1974) combined social studies content with critical reading and communication skills, which included the ability to understand and evaluate all forms of primary and secondary resources. Comprehension was applied through a variety of media such as print, graphics, and drama. Using a language experience approach, students wrote their own library reference books in a seventh grade classroom. Multilevel

lessons were developed to meet individual needs of the group to grasp content. Through a hands on approach involving the construction of games and other devices, students applied conceptual knowledge.

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APPENDIX A

Ditto Masters

"I Love Reading - All About People and Places" (Social Studies), "I Love Reading - Mysteries of Science", (Science) Easley, Kranze, Instructional Fair, Inc., Grand Rapids, Michigan.

"Life Science, Reading Comprehension, Trees to Tidepools, Vaccines to Vitamins", "Social Studies - Fantastic Facts", Frank Schaffer Publications

Kits

EDL "Study Skills Library", Levels C G H I (Science and Social Studies), Educational Development Laboratories Division of McGraw-Hill Book Co., Upton, New York

"Food Your Choice" A Nutrition Learning System, level 3, Society for Nutrition Education, National Dairy Council

"Mastering Math", 2c, Problem Solving, McCormick-Mathers

"Specific Skills Series", Barnell Loft, Ltd. Richard A. Boning, Baldwin, New York

"SRA Reading Laboratory" level 2b

Enrichment

"Cherry Hill Study Skills Program", Student Manual. Course B

"Drifting Snowflakes", Wandering Footsteps", Reading, Thinking, and Reasoning Skills Program, Barnes, Burgdord, Bell, Steck-Vaughn Co., Austin, Texas

"Pocketful of Puzzles", Center for Applied Research in Education, Inc.

"Vocabulary Skills in the Content Area" Bowmar/Noble Publishers, Inc., 1978

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